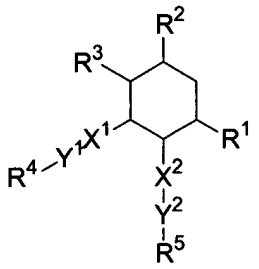
In the Claims:

Please cancel claim 2 and replace it with newly presented claim 9 as indicated below. Please amend claims 1, 5, 6, 7, and 8 as indicated below.

1. (Currently amended) A compound selected from the group consisting of:

(a) a compound of formula ~~Compounds having the structure of (I), as well as pharmaceutically acceptable salts, prodrugs and solvates thereof~~:



(I)

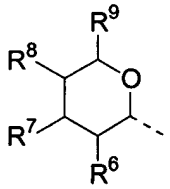
wherein,

R^1 and R^2 are independently amino, protected amino or modified amino,

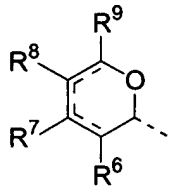
X^1 and X^2 are independently O, S or NH,

Y^1 or Y^2 is a bond or a divalent linking group,

R^3 is selected from the group consisting of the formula (II) or (III):

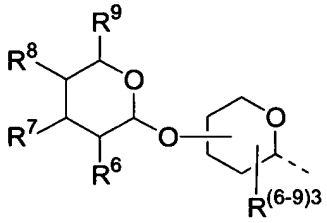


(II)

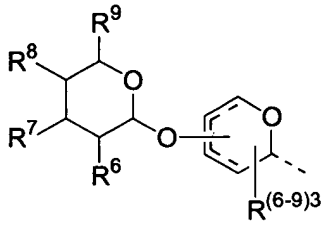


(III)

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), including disaccharides (II-1) and (III-1)[[.]] :

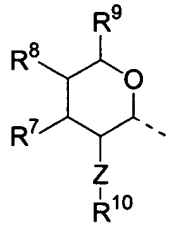


(II-1)

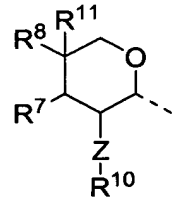


(III-1)

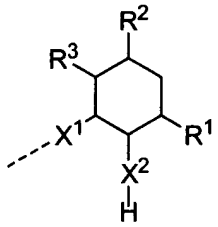
one of R^4 and R^5 is hydrogen, hydroxyl protecting or modified hydroxyl group when one of Y^1 or Y^2 is a bond and the other is selected from a group consisting of formula (II), (III), (IV), (V), (VI) or (VII):



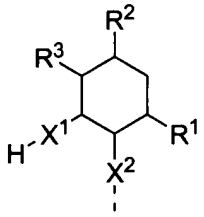
(IV)



(V)



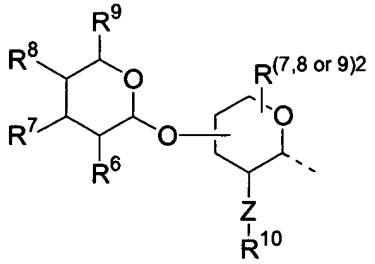
(VI)



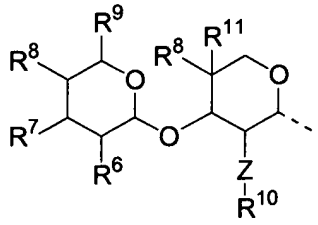
(VII)

Z can be O, S or NH,

R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^7, R^8 and R^9 can be independently another mono[[e]]- or disaccharide (II), comprising ~~including~~ disaccharides (IV-1) and (V-1)



(IV-1)



(V-1)

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group, and

R^{11} can be a hydrogen, halogen or alkyl group[[.]];

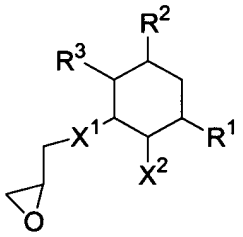
(b) a pharmaceutically acceptable salt of a compound of formula (I);

(c) a prodrug of a compound of formula (I); and

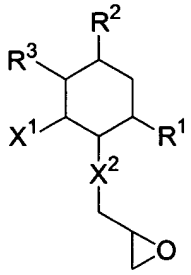
(d) a solvate of a compound of formula (I).

2. (Cancelled).

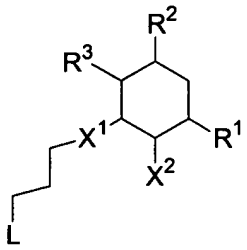
3. (Withdrawn) Compounds having the structure of (Ia), (Ib), (Ic), (Id), (IIa), (IIIa), (IVa) or (Va):



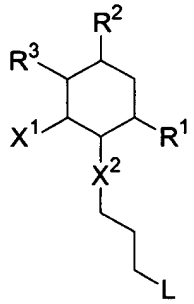
(Ia)



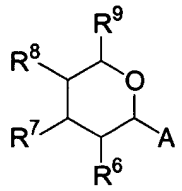
(Ic)



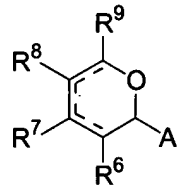
(Ib)



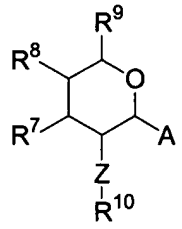
(Id)



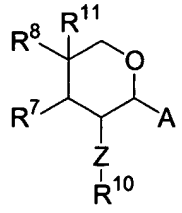
(IIa)



(IIIa)



(IVa)



(Va)

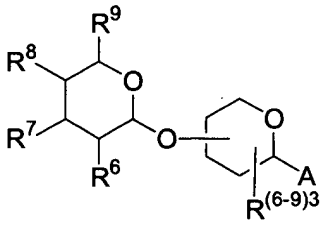
wherein, L is a leaving group,

A is a carbohydrate-activating group,

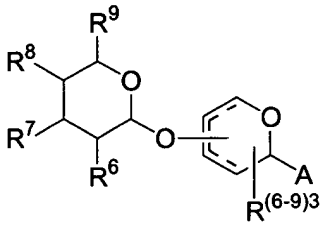
R^1 and R^2 are independently amino, protected amino or modified amino,

R^3 is selected from the group consisting of the formula (II) or (III),

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen. R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), including disaccharides (IIa-1) and (IIIa-1).

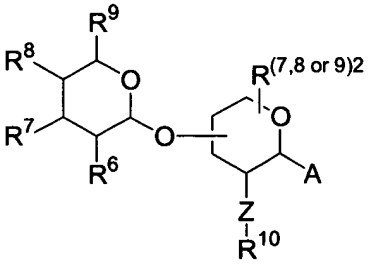


(IIa-1)

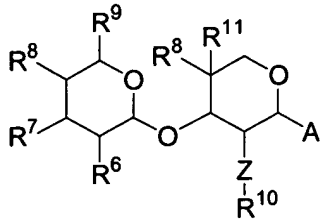


(IIIa-1)

R^7, R^8 and R^9 can also be independently another mono- or disaccharide (II), including disaccharides (IVa-1) and (Va-1)



(IVa-1)



(Va-1)

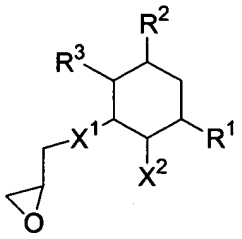
One of X^1 or X^2 is O, the other can be a protected hydroxyl or modified hydroxyl,

Z can be O, S or NH,

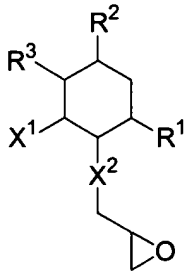
R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group, and

R^{11} can be a hydrogen, halogen or alkyl group.

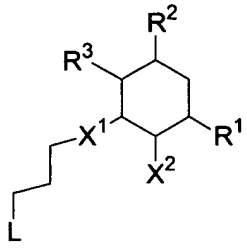
4. (Withdrawn) A method for synthesizing compounds having the structure of (Ia), (Ib), (Ic), (Id), (IIa), (IIIa), (IVa) or (Va):



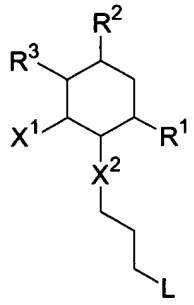
(Ia)



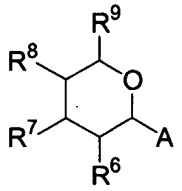
(Ic)



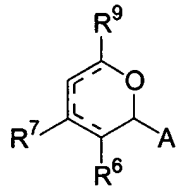
(Ib)



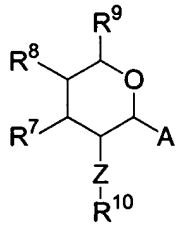
(Id)



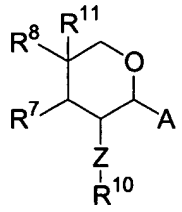
(IIa)



(IIIa)



(IVa)



(Va)

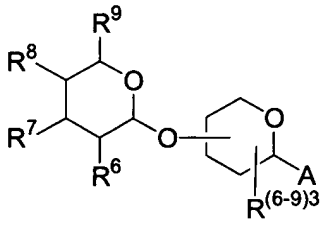
wherein, L is a leaving group,

A is a carbohydrate-activating group,

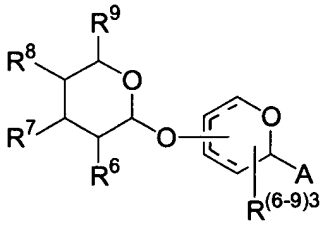
R^1 and R^2 are independently amino, protected amino or modified amino,

R^3 is selected from the group consisting of the formula (II) or (III),

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen, R^6, R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), including disaccharides (IIa-1) and (IIIa-1).

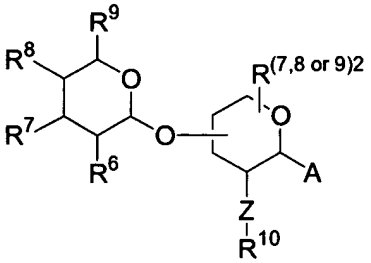


(IIa-1)

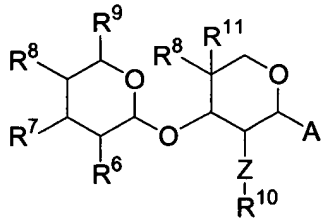


(IIIa-1)

R^7, R^8 and R^9 can also be independently another mono- or disaccharide (II), including disaccharides (IVa-1) and (Va-1)



(IVa-1)



(Va-1)

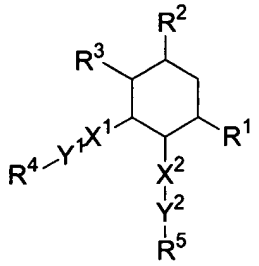
One of X^1 or X^2 is O, the other can be a protected hydroxyl or modified hydroxyl,

Z can be O, S or NH,

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group, and

R^{11} can be a hydrogen, halogen or alkyl group.

5. (Currently amended) A pharmaceutical composition for the prophylaxis, amelioration or treatment of a bacterial infection, viral infection, a cancer, or a genetic disorder in mammals, avian, fish and reptile species as well as in cell culture, which comprises a therapeutically effective amount of a compound of formula I or a pharmaceutically acceptable salt, prodrug or solvate thereof,



(I)

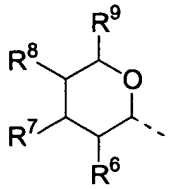
wherein,

R^1 and R^2 are independently amino, protected amino or modified amino,

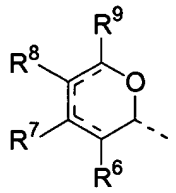
X^1 and X^2 are independently O, S or NH,

Y^1 or Y^2 is a bond or a divalent linking group,

R^3 is selected from the group consisting of the formula (II) or (III):

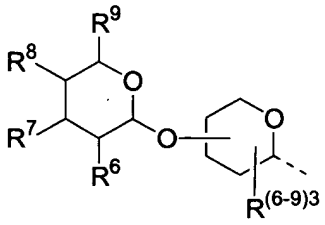


(II)

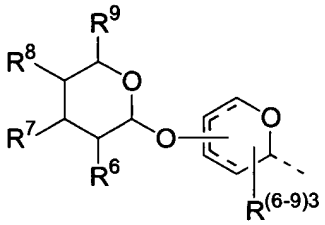


(III)

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (II-1) and (III-1)[[.]] :

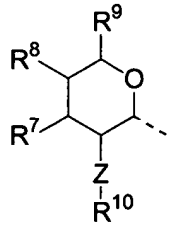


(II-1)

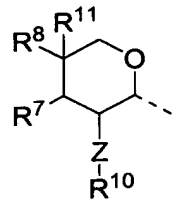


(III-1)

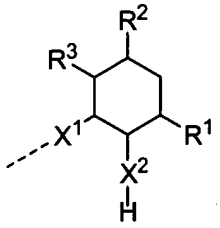
one of R^4 and R^5 is hydrogen, hydroxyl protecting or modified hydroxyl group when one of Y^1 or Y^2 is a bond and the other is selected from a group consisting of formula (II), (III), (IV), (V) or (VI):



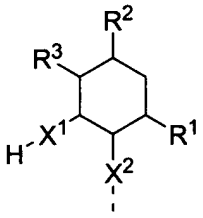
(IV)



(V)



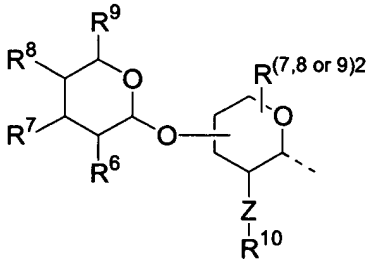
(VI)



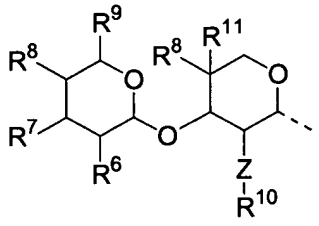
(VII)

Z can be O, S or NH,

R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (IV-1) and (V-1)



(IV-1)



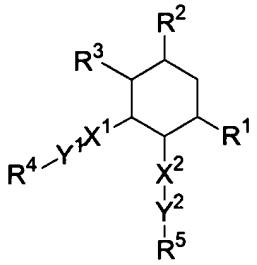
(V-1)

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group,

R^{11} can be a hydrogen, halogen or alkyl group,

and a pharmaceutically acceptable carrier.

6. (Currently amended) A method for treating, preventing, or ameliorating a bacterial infection, a viral infection, a cancer, or a genetic disorder in mammals, avian, fish and reptile species as well as in cell culture, which comprises administering a therapeutically effective amount of a compound of formula I or a pharmaceutically acceptable salt, prodrug or solvate thereof,



(I)

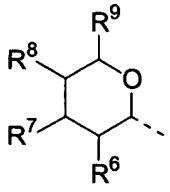
wherein,

R^1 and R^2 are independently amino, protected amino or modified amino,

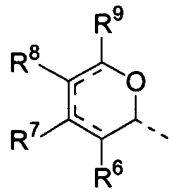
X^1 and X^2 are independently O, S or NH,

Y^1 or Y^2 is a bond or a divalent linking group,

R^3 is selected from the group consisting of the formula (II) or (III):

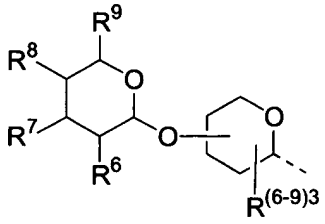


(II)

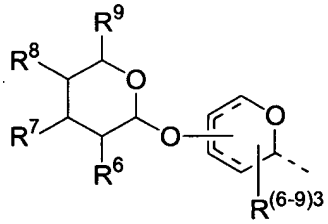


(III)

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (II-1) and (III-1)[[.]] :

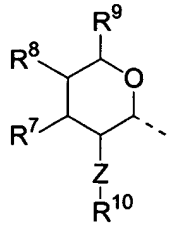


(II-1)

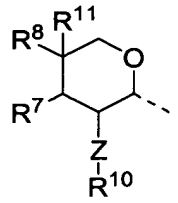


(III-1)

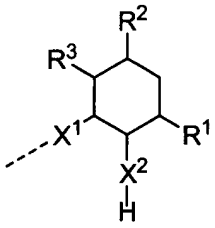
one of R^4 and R^5 is hydrogen, hydroxyl protecting or modified hydroxyl group when one of Y^1 or Y^2 is a bond and the other is selected from a group consisting of formula (II), (III), (IV), (V) or (VI):



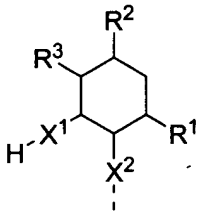
(IV)



(V)



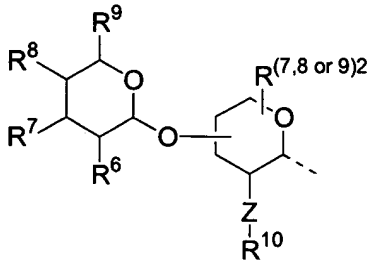
(VI)



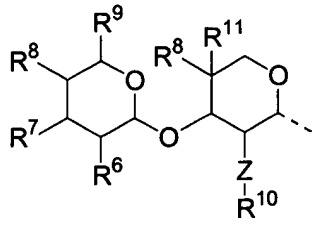
(VII)

Z can be O, S or NH,

R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (IV-1) and (V-1)



(IV-1)



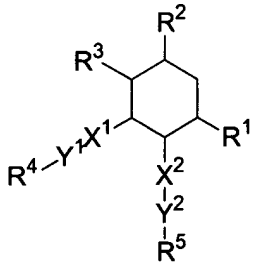
(V-1)

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group,

R^{11} can be a hydrogen, halogen or alkyl group,

and a pharmaceutically acceptable carrier, to an organism or a cell culture in need thereof to treat, prevent, or ameliorate the bacterial infection, the viral infection, the cancer, or the genetic disorder in the organism or in the cell culture.

7. (Currently amended) An antibacterial, antiviral or antifungal agent comprising a compound of formula I,



(I)

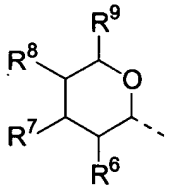
wherein,

R^1 and R^2 are independently amino, protected amino or modified amino,

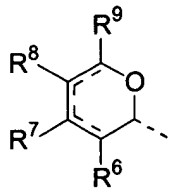
X^1 and X^2 are independently O, S or NH,

Y^1 or Y^2 is a bond or a divalent linking group,

R^3 is selected from the group consisting of the formula (II) or (III):

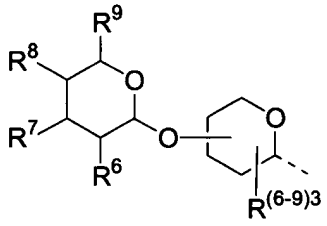


(II)

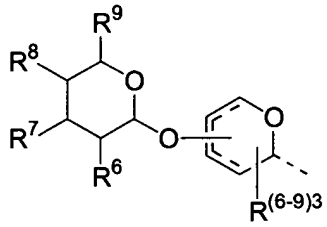


(III)

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (II-1) and (III-1)[[.]] :

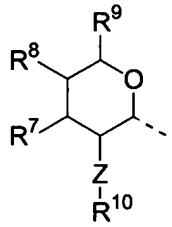


(II-1)

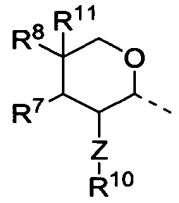


(III-1)

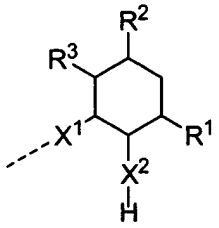
one of R^4 and R^5 is hydrogen, hydroxyl protecting or modified hydroxyl group when one of Y^1 or Y^2 is a bond and the other is selected from a group consisting of formula (II), (III), (IV), (V) or (VI):



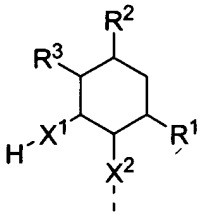
(IV)



(V)



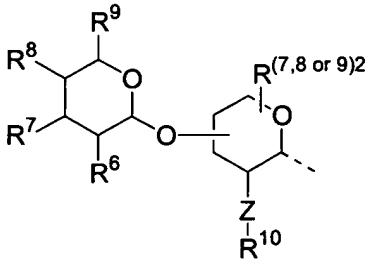
(VI)



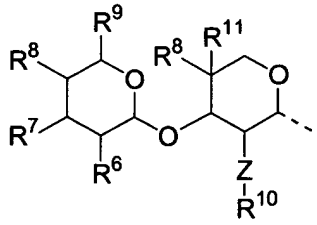
(VII)

Z can be O, S or NH,

R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (IV-1) and (V-1)



(IV-1)



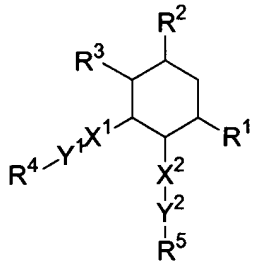
(V-1)

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group,

R^{11} can be a hydrogen, halogen or alkyl group,

and an acceptable carrier.

8. (Currently amended) A method for preventing, inhibiting, or stopping the growth of bacteria on a surface or within the material of the surface or within the material of the surface, comprising applying to a surface or within the material of the surface an effective amount of an antibacterial agent comprising an acceptable carrier and a compound of formula I, ~~and an acceptable carrier.~~



(I)

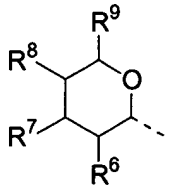
wherein,

R^1 and R^2 are independently amino, protected amino or modified amino,

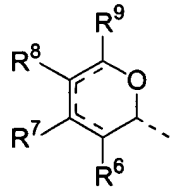
X^1 and X^2 are independently O, S or NH,

Y^1 or Y^2 is a bond or a divalent linking group,

R^3 is selected from the group consisting of the formula (II) or (III):

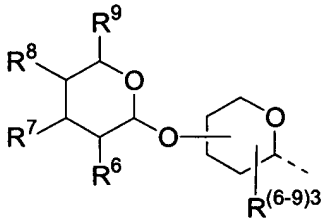


(II)

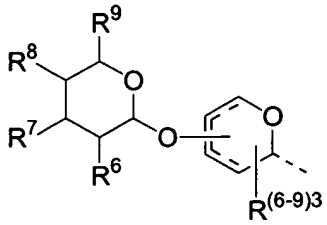


(III)

R^6, R^7, R^8 and R^9 can be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^6, R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (II-1) and (III-1)[[.]] :

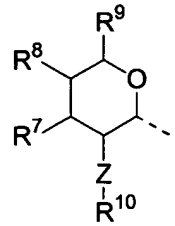


(II-1)

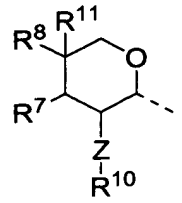


(III-1)

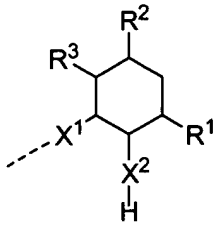
one of R^4 and R^5 is hydrogen, hydroxyl protecting or modified hydroxyl group when one of Y^1 or Y^2 is a bond and the other is selected from a group consisting of formula (II), (III), (IV), (V) or (VI):



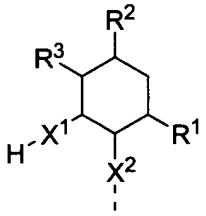
(IV)



(V)



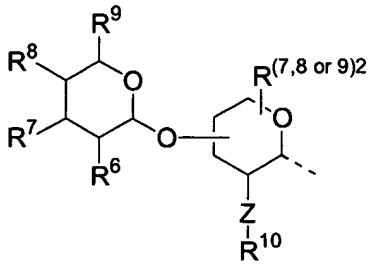
(VI)



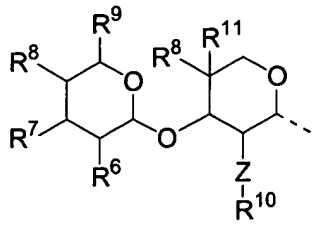
(VII)

Z can be O, S or NH,

R^7, R^8 and R^9 can also be independently a hydrogen, hydroxyl, protected hydroxyl, modified hydroxyl, amino, protected amino, modified amino, hydroxymethyl, protected hydroxymethyl, aminomethyl, protected aminomethyl, keto or a halogen or R^7, R^8 and R^9 can be independently another mono- or disaccharide (II), comprising ~~including~~ disaccharides (IV-1) and (V-1)



(IV-1)



(V-1)

R^{10} can be hydrogen, an alkyl group, an amine protecting group, modified amino, hydroxyl protecting or modified hydroxyl group, and

R^{11} can be a hydrogen, halogen or alkyl group.

9. (New) A method for synthesizing a compound of claim 1 comprising the steps of:

(a) preparing selectively protected 2-DOS chemo-enzymatically starting from neomycin B;

(b) glycosylating the selectively protected 2-DOS at the 4-position with a natural or unnatural glycosyl donor defined by R^3;

(c) subsequently, glycosylating the glycosylated 2-DOS intermediate at the 5- or 6-position with at least one glycosyl donor selected from the group consisting of natural glycosyl donors and unnatural glycosyl donors; and;

(d) if necessary, removing any remaining protecting groups.